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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,589	01/18/2002	Shimpei Miura	218206US3	7109

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER	
HODGE, ROBERT W	
ART UNIT	PAPER NUMBER
1746	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/050,589

Applicant(s)

MIURA ET AL.

Examiner

Robert Hodge

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-12,15-21,24,25 and 28-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-12,15-21,24,25 and 28-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/18/03</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Arguments***

1. In response to applicants' Remarks/Arguments the examiner acknowledges that claims 3, 4, 13, 14, 22, 23, 26 and 27 have been canceled and the new independent claims 30-33 have been added to the instant application. And in light of the above canceled claims the previous 35 U.S.C. § 112 rejection for claims 3, 4, 13, 14, 22, 23, 26 and 27 is withdrawn.
2. Applicant's arguments, see 10/050,589, filed 12/20/04, with respect to the rejection(s) of claim(s) 1-2, 5-10, 12 and 20-21 under 35 U.S.C. 102(b) and claims 1-2, 5-12, 15-21, 24-25 and 28-29 under 35 U.S.C. 102(e) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Gamo et al. European Patent No. 0 813 264 A2, hereinafter referred to as Gamo et al., Hauer WO 99/05739 (U.S. Patent No. 6,534,209 is used as the English translation) hereinafter Hauer, and McElroy U.S. Patent No. 6,251,534 hereinafter McElroy.
3. Applicant's arguments filed 12/20/04 with regards to claims 11, 15-19, 24-25 and 28-29 under 35 U.S.C. 102(b) have been fully considered but they are not persuasive. And therefore the previous rejection will be maintained.
4. And the rejection of claims 6, 7, 16 and 17 under 35 U.S.C. § 112 has not been addressed and therefore the examiner maintains the rejection.

***Claim Language***

5. Applicants are put on notice that claim language for claiming an apparatus must provide structure for the apparatus that the applicants deem to be their invention. In the instant application the claim language of claims 1-2, 5-12, 15-21, 24-25 and 28-33 does provide structure but also provides process steps as well as intended use statements. The examiner notes that little to no patentable weight has been given to the claim language, which provides a process step or is a statement of intended use. In light of the above statements the examiner has examined claims 1-2, 5-12, 15-21, 24-25 and 28-33 in as much as the structure of the apparatus has been claimed and as long as the structure of the prior art can perform the same function it will read on the claims as so recited.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 6 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. In the above-mentioned claims the phrase "its outer side" is used to explain the location of where a valve is supposed to be mounted. However it is unclear as to the actual location of said valve. Applicants should be aware that a fuel cell and/or a

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hydrogen gas supply have more than one outer side and as claimed said valve could be located anywhere on the outer periphery of the fuel cell and/or hydrogen gas supply.

9. Claims 7 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. In the above-mentioned claims the phrase "without interposing a flow passage member" is used to describe the valve being connected to the fuel cell and/or hydrogen gas supply. However it is unclear as to how the valve being connected to the fuel cell and/or hydrogen gas supply is accomplished without interposing the flow passage member. Applicant should be aware that it is also not clear what the interposing object is that could possibly come between the valve and flow passage member.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 11, 15-19, 24-25, 28-29, 31 and 33 are rejected under 35 U.S.C. 102(b) as being clearly unpatentable by Gamou et al.

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13. Gamo et al. teaches a fuel cell system (abstract and figure 1) being supplied with hydrogen (column 2, line 26) through an inlet (abstract and figure 1), which reacts with oxygen to make electric power (column 1, lines 15-17 and column 4 lines 57 –59) and the exhaust gases exit through an outlet (column 3 lines 20-22, column 5, line 37 and figure 1), with the hydrogen being supplied from either an occluding tank (abstract and column 5, line 2) or a high pressure tank (column 2, lines 11-12) and that a valve is built into the hydrogen gas supplying portion (column 7, lines 26-30). Gamo et al. further teaches the supply of hydrogen gas to a fuel cell using a “hydrogen passage” (column 5, lines 12-14), which inherently does not restrict the flow of hydrogen gas.

14. Claims 20 and 32 are further rejected under 35 U.S.C. 102(b) as being unpatentable by Hauer.

15. Hauer teaches a fuel cell stack which generates electric power by being supplied hydrogen gas (column 1, lines 14 et seq.) wherein a valve is provided within at least one of the supply port or exhaust port of the fuel cell and that is integral with the body of the fuel cell (figure 1, column 1, lines 58 et seq., column 2, lines 43 et seq. and claims 1-5)

16. Claims 20-21, 30 and 32 are rejected under 35 U.S.C. 102(e) as being unpatentable by McElroy.

17. McElroy teaches a fuel cell system having a hydrogen gas supply that is used to deliver hydrogen to the fuel cell, wherein the fuel cell has an inlet and an outlet passage with a valve that is provided within at least one of the supply or exhaust ports (figure 1, column 5, lines 34 et seq. and column 8, lines 15 et seq.).

***Claim Rejections - 35 USC § 103***

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 1-2, 5-9, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gamo et al. in view of Hauer.

20. Gamo et al. teaches everything in the above 102 rejection.

21. Gamo et al. does not teach that the valve is integral with the body of the fuel cell.

22. Hauer teaches a valve that is integral with the body of the fuel cell (as seen in figure 1 and described in column 2 lines 43 et seq.)

23. It would have been obvious to a person of ordinary skill in the art to include a valve that is integral with the body of the fuel cell in the Gamo et al. reference as disclosed by the Hauer reference in order to control the operating mode of the fuel cell stack depending on the load required at the time of operation by controlling the amount of reactants to enter or leave the fuel cells in the stack. And also since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove works*, 150 U.S. 164 (1893).

24. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gamo et al. in view of Hauer and McElroy.

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25. Gamo et al. and Hauer teach everything in the above 102 and 103 rejections respectively.

26. Gamo et al. and Hauer don't teach connecting the fuel inlet with the fuel outlet streams.

27. McElroy teaches a fluid communication line between the fuel inlet and outlets (as seen in figure 1, ports 280 and 310 are in fluid communication with one another with valve 500 in the path, especially in the embodiment found in column 6, lines 8-27).

28. It would have been obvious to include in the Gamo et al. and Hauer references the use of connecting the fuel outlet with the inlet as taught by McElroy in order to provide a fluid communication path between the two for the purposes of providing fresh fuel to the fuel cells opposite the inlet in order to create a higher power output depending on the demand put on the fuel cell. The examiner notes that although it is not explicitly taught by McElroy, with this same configuration it would also be possible to recycle hydrogen from the exhaust to the fuel feed by simply closing valve 510 and opening valve 500, while leaving valve 520 closed.

### ***Conclusion***

29. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. U.S. Patent No. 6,821,668 to Perry et al., teaches valves that are built into the manifold of a fuel cell used for controlling fuel to flow in and out of the stack



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30. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RWH 3-8-05

*J. Crepeau*  
Jonathan Crepeau  
Primary Examiner  
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